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to a small room which led by a back stair to the king's chamber. The Duke of York sent to receive and introduce Father Hudleston, and then said aloud, "the King wishes every one to withdraw except the Earls of Bath and Feversham." The one was first gentleman of the bed-chamber, and the other was in waiting that week in his turn. The physicians went into a closet and the door was shut. The Duke presenting Hudleston, said to the king, "here, here is a man who saved your life, and now comes to save your soul." The king answered he is welcome." He then confessed with marks of great devotion and repentance. Hudleston had been instructed by a barefooted Portuguese Carmelite what he was to say to the king, as he was no great divine; but the Duke told me that he acquitted himself very well, that he made the king formally promise, to declare himself openly a Catholic, if he should recover; and that he then received absolution, the holy communion, and even extreme unction; all this lasted near three quarters of an hour, all looked at each other in the anti-chamber, but no one spoke, except with their eyes and in whispers. The presence of the Lords Bath and Feversham who are Protestants, served a little to encourage the bishops; but the queen's women and the other priests saw so many coming and going, that I think the matter cannot be kept long secret.

When the king had received the holy communion there appeared a slight amendment in his illness. He certainly spoke more intelligibly, and had more strength, and we still entertained hopes that it would please God to display a miracle by restoring him to health;* but the physicians did not think the disease abated, and that the king could not outlive the night; however he appeared very calm, and spoke with more sense, and recollection than before, from eight o'clock in the evening till six the next morning. He spoke several times aloud to the Duke of

York in terms of the greatest tenderness and friendship; he twice recommended the Dutchess of Portsmouth and Duke of Richmond, to his care; as well as all his other children, except the Duke of Monmouth, whom he never mentioned. He frequently declared his confidence in the mercy of God. The bishop of Bath and Wells, who was his preacher, repeated some prayers, and spoke to him of God, and the king signified, by a motion of his head, that he heard him; this bishop did not press any thing particular on him, nor proposed to him, to make any profession of his faith. He feared a refusal, but dreaded still more, as far as I can conjecture, to provoke the Duke of York.

The king retained his recollection quite perfect all night; and spoke sometimes with great calmness. At six o'clock he asked what was the hour, and said, "open the curtains that I may again see the day." He suffered great pain, and at seven he was bled in hopes of allaying it. At half past eight, he began to speak with great difficulty, at ten he did not appear to recollect any one; and at noon, he died without any struggle or convulsion.

I considered it my duty to give an exact account of what happened on this occasion to your majesty; and I think myself very happy that God has allowed me to have some share in it. I am &c. L.

For the Belfast Monthly Magazine.

NOTWITHSTANDING the length of time which has elapsed since the following address was delivered, we are inclined to gratify the friends of Botany, in this country, by its insertion, and are not without hopes that it may stimulate to a similar institution in this rising town. In a former number at page 91, of our first volume, we gave an account of this garden, and in a future number we design to communicate the laws and regulations adopted for the conduct of this institution.

* Que dieu avoit voulu faire un miracle en le guerissant.

AN ADDRESS, DELIVERED BEFORE THE PROPRIETORS OF THE BOTANIC GARDEN, IN LIVERPOOL, PREVIOUS TO OPENING THE GARDEN, MAY 3, 1802. BY WILLIAM ROSCOE, ESQ.

In consequence of the untimely death of our highly respected president,* an event which I lament in common with every person present, and with the whole town of Liverpool, it has fallen to my lot at this time to lay before you an account of the measures which have been taken since we last met, for effecting the purposes of our association. Before, however, I proceed to the immediate business of the day, I shall beg leave to submit to you a few observations on the nature and objects of our institution, and this I am the rather induced to do, as this is probably the only opportunity that may occur previous to the opening the garden for general use.

After the unanimity, spirit, and liberality, which have been displayed by so numerous and respectable a body of the inhabitants of this town, in providing so ample a fund for this establishment, it may seem superfluous to detain you by any observations on the advantages likely to be derived from it; but as every pursuit is liable to objections from various quarters, and as we stand before the public, as having applied a large sum of money, and appropriated a considerable annual income, to the purposes of this institution, it seems to me that we owe it no less to that public, than to ourselves, to obviate those objections which may be made against us, and if not to vindicate, explicitly to state, the objects we have in view.

There are probably few persons present who have not at some time heard it said, that the study of *botany* is a trifling employment, undeserving of the time and attention which must necessarily be bestowed upon it. It may however be remarked, that the persons from whom this observation proceeds, are not in general distinguished by their proficiency in any other commendable pursuit;

every laudable acquirement being considered by them either as above or below their abilities. But can we for a moment conceive, that the works of God are unworthy the attention of man?—that those productions which bear such evident marks of the wisdom and power of the Creator, are too contemptible for the examination of his Creatures?—Whoever has had the curiosity to crop the humblest flower of the field, and to observe the wonderful conformation of its parts, combining the united purposes of elegance and utility, will not hastily despise the study of nature. But when these observations are extended through the immense variety of productions which compose the vegetable kingdom; when the different offices of each particular part of the plant, every one essentially contributing towards its existence and propagation, are considered; when we advert to the variety of modes in which these ends are effected, and the infinite contrivance, if such an expression may be allowed, which is exhibited in their accomplishment, a wide field for instruction and admiration is opened before us.—In some instances the operations necessary to the increase of the individual are carried on by an apparatus in the same flower, in others the parts requisite for that purpose are disposed in different flowers of the same tree; and other plants, by a nearer reference to animal life, are distinguished by the separation of sexes, and can only be increased by being planted in the vicinity of each other.—If we consider the internal structure, our wonder will increase in proportion as our examination is more minute.—Inspect with a microscope a transverse section of the stem of a plant, and observe the numerous pores, disposed in regular order; some destined, like the arteries of an animal, to convey nutrition to the remotest parts, and others to elaborate and concoct those endless varieties of resins, gums, salts, acids, caustics, and essences of different kinds, which it is the peculiar nature of the plant to produce. What hu-

* Richard Walker, esq. of Oak-hill.

man skill can construct a machine so wonderfully and beautifully arranged: Compare the most finished production of art with these works of nature, and see the infinite inferiority of its highest attempts; but even if the external resemblance could be rivalled, how absurd would be the endeavour to render this imitation capable of effecting one single purpose which the simplest vegetable performs. What then is the result of this inquiry?—The establishment of the most important truth in nature—That if the utmost efforts of man can neither invent, nor even imitate these works, they are the product of superior intelligence and power; and thus, by decisive and ocular demonstration, we have an irresistible and unanswerable proof of the existence, the wisdom, and the goodness of God.

Another remark which has frequently been made to the prejudice of the study of *botany*, is, that it is a mere Nomenclature, tending only to burthen the memory with an immense list of names, without imparting to the student any degree of real and useful knowledge. But, supposing we grant for a moment that the only object of this study is the acquisition of the names of plants, is it a matter of small gratification, or of small importance, to be enabled to distinguish, at first sight, the productions of the vegetable kingdom, and to refer them to their proper classes, families, and stations? and must not this, in fact, precede every other kind of knowledge respecting them?—The disadvantages which result from the neglect of this study, are seldom more seriously felt than in the perusal of those narratives of voyages and travels, which are now so profusely published. In passing through countries which have seldom been visited by European curiosity, it is in the highest degree desirable, that the adventurer should be able to avail himself of the opportunities afforded him, so as to render his labours of substantial service to mankind; but how is this to be effected, unless he be previously furnished with sufficient knowledge to distinguish those natural productions which it may be worth his while either to

procure, or to describe? For want of this knowledge, which would enable him to acquaint us in two words with the name of every known plant, and to refer to its proper station every one which is unknown, we have endless descriptions of surprising vegetable productions, which either give us no precise idea, or by a long and circuitous track, enable us at length to recognize an old and familiar acquaintance. A striking instance of this may be found in the celebrated Kotzebue's narrative of his banishment to Siberia, in the course of which he discovered a plant which attracted in a high degree his admiration, and which he has described at great length as one of the most beautiful flowers he had ever met with. A very moderate acquaintance with botanical science would, however, have informed him, that this plant, if one may venture to form a judgment from his account of it, was already known to most parts of Europe, by the name of *cypripedium*, and the only doubt which remains is, as to the particular species of the plant, a doubt which his description does not after all enable us to clear up.

Nor are the advantages incidentally derived from these employments of slight account. Whoever has opened his mind to comprehend the extensive system of the vegetable kingdom, as arranged by that great father of the science, the immortal *Linné*, and has traced it through its various connexions and relations, either descending from generals to particulars, or ascending by a gradual progress from individuals to classes, till it embraces the whole vegetable world, will, by the mere exercise of the faculties employed for this purpose, acquire a habit of arrangement, a perception of order, of distinction, and subordination, which it is not perhaps in the nature of any other study so effectually to bestow. In this view the examination of the vegetable kingdom seems peculiarly proper for youth, to whose unperverted minds, the study of natural objects is always an interesting occupation, and who will not only find in this employment an innocent and a healthful amusement, but will familiarize themselves

to that regulated train of ideas, that perception of relation between parts and the whole, which is of use not only in every other department of natural knowledge, but in all the concerns of life. Independent too of the habits of order and arrangement which will thus be established, it may justly be observed, that the bodily senses are highly improved by that accuracy and observation, which are necessary to discriminate the various objects that pass in review before them. This improvement may be carried to a degree, of which those who are inattentive to it have no idea. The sight of Linné was so penetrating, that he is said never to have used a glass, even in his minutest inquiries. But our own neighbourhood affords a striking instance of an individual,* who, although wholly deprived of sight, has improved his other senses, his touch, his smell, and his taste, to such a degree, as to distinguish all the native plants of this country, with an accuracy not attained by many of those who have the advantages of sight, and which justly entitles him to rank with the first botanists of the kingdom.

But if such be the advantages derived from the study of *botany* as an abstract science, how much more important must it appear, when we consider that the whole subsistence of animal life is derived from, and entirely dependant on, the vegetable kingdom, and that the final cause, or proper use of plants, is to elaborate for animals that food which they can obtain by no other means. In such a point of view, this study acquires a dignity and an importance which leaves far behind it many of those occupations which are in general erroneously regarded with much superior approbation—as immediately connected with the subsistence and well-being of the human race; as the parent of agriculture and of horticulture, continually employed in providing and improving the great variety of healthful, pleasant, and useful productions which contribute to the support and enjoyment of life; the importance of this study

is self evident, and will certainly justify us in devoting a few moments to its more particular consideration.

If we were to indulge ourselves in a diffuse examination of the various purposes to which the productions of the vegetable kingdom are applicable, either in their native state, or in the many forms and combinations, as well liquid as solid, in which they are employed, we should certainly mispend our time, and probably weary our attention; but a few general observations on the different departments in which the knowledge of plants is more immediately requisite, cannot be thought remote from the purpose of the present meeting.

That among the medicines now in general use, some of the most beneficial and powerful are derived from vegetables, is universally known; but it is highly probable, that among the different tribes of plants which are indigenous to different parts of the earth, many other remedies, perhaps equally or more beneficial, yet remain for future times to discover and convert to use. The importance of experiments on this subject will be evident when it is considered, that the useful ingredient, frequently resides in some particular part or produce—in the root, the leaves, the flower, the fruit, the seed, or the exudation of the plant. In fact, the discovery of such vegetable remedies as we already possess, is rather to be attributed to accident, than to the result of any scientific attempts to ascertain their efficacy, and the world has hitherto been more indebted to the rude example of barbarous nations, who have sought their medicines in the wild productions of the soil, than to the researches of the philosophical and enlightened practitioner. Strange as it may seem, it is by no means improbable, that those plants which are regarded with horror, and trampled under foot as poisonous, may, under proper treatment, produce the most useful and efficacious remedies; and even those which are too acrid for internal use, would be found of the highest advantage when employed as external medicaments. Of the plants now

* Mr. Gough, of Kendal.

known, a very small proportion have ever been subjected to investigation in the various forms in which it might be applied; and of those that are known, attempts at improvement are often frustrated through the mere ignorance of botanical science, inasmuch, that medicines of real efficacy may have lost their credit by the substitution of others which resemble them in appearance, without possessing any of their properties. I have been informed by a very respectable friend, and excellent botanist,* that he once saw, in the laboratory of a druggist in the West of England, a considerable quantity of a plant which had been collected for the *Conium maculatum*, or hemlock, so strongly recommended as an efficacious remedy, but which, on examining, he found to be no other than the *Cherophyllum temulum*, a plant which, although it resembles the hemlock in its general appearance, is easily distinguishable from it by any person having the slightest tincture of botanical knowledge.

That of the vegetable medicines imported into this country, a great part might be cultivated here to considerable perfection is undoubted. The amount of Rhubarb alone brought into this kingdom, has been stated, though probably exaggerated, at the annual sum of £200,000.—Yet repeated experiments have shown, that the true *rheum palmatum*, will not only grow and perfect its seeds in this country, but that it possesses similar qualities in every respect to the foreign rhubarb.—In the same manner it is well ascertained, that good opium may be obtained from the *papaver somniferum*, and most probably assafetida from the *ferula assafetida*, a plant which perfectly bears this climate, although it is yet almost exclusively confined to the precincts of the botanic garden at Edinburgh.

Another field no less extensive, and no less fertile, is opened to the diligent inquirer, in the application of vegetable productions to the purposes of manufactures and arts.—From the *cannabis sativa*, or hemp,

the *linum usitatissimum*, or flax, and the *gossypium herbaceum*, or cotton, we derive a variety of productions of various texture, which contribute to the different objects of use or ornament, and the preparation of which has given these kingdoms a decided superiority over every other part of the globe. It is, however, highly probable, that many other plants contain fibrous substances either in the bark, the stalk, or the leaves, which might by proper processes be converted to a similar use, and might produce a web not only of a different, but of a more beautiful texture than any hitherto known.—The rude productions of the Southern islands from the barks of plants, afford a sufficient indication of that which might be effected by the skill of modern ingenuity. In a plant of which we have already made the acquisition (the *phormium tenax*) the fibrous quality is so remarkable, that from a single leaf may be collected an aggregate of threads upwards of three feet long, and nearly the thickness of a finger, the strength of which seems to be in every respect proportionate to its size. Nor, as we descend to the minuter specimens of the vegetable world, does their utility seem to decrease. The *musci*, *algæ*, and probably the *fungi*, contain an infinite variety of dyes, which by proper processes may be extracted for the use of the manufacturer. From some of the *lichens*, important materials are already obtained; nor is it improbable that many others, if exposed to proper experiments, would be found equally useful. These qualities, although so generally neglected, are frequently indicated in a most striking manner. On breaking the *boletus tuteus*, a large fleshy production of the fungus kind, the part so broken, discloses a fine yellow surface, which by the operation of the air, is, in the space of one minute, converted to a beautiful blue.

With respect to the use of vegetables as food, it is notorious to all who have the slightest knowledge of the former state of this country, that scarcely a single article of those which now compose the daily nourish-

* John Ford, M.D. and F.L.S.

ment of the people, is indigenous to the island, but that almost every valuable production we possess, has been introduced by the useful labours or laudable curiosity of those, who like yourselves, have cultivated or encouraged botanical and agricultural science. The potatoe, at present the most valuable of esculent plants, is a tender exotic, which shrinks, and frequently perishes in our climate. Its original introduction was probably as an article of curiosity, and general as it is now become, it may possibly be yet superseded by some more nutritious and healthful production. For the fruits which enrich our orchards and gardens, we are indebted to almost every different quarter of the earth, the plants of which have by degrees been accustomed to our climate, and repay our attention by an infinite variety of healthful, rich, and grateful productions. In all the more useful tribes of fruit-bearing plants, there is indeed a wonderful tendency to conform themselves to the accommodation and service of man. The infinite varieties of the apple, the pear, the cherry, and the plum, as they now appear in our gardens, are almost as much the product of art as of nature, and are most of them wholly different in magnitude, flavour, colour, and salubrity, from the native stocks from which they are originally sprung. The same may be asserted, with equal truth, of most of our esculent vegetables, many of which in their unimproved state, are useless or poisonous productions, but cultivated in our gardens, acquire a sort of second nature, and not only lose their noxious qualities, but become useful and salutary articles of food.—But can any one say, that in this department no further hopes of acquisition remain? When the peach and the apricot are as common on our walls as the gooseberry in our borders, is it unreasonable to expect, that in countries yet imperfectly explored, many fruits may be found which may also be gradually inured to a more northern clime? And is it not probable, that the improvement of esculent plants by artificial means is yet in its infancy, and like every

other science which investigates the operations of nature, may be carried to an indefinite degree of perfection! It would be trespassing on your patience, to dwell upon the various improvements which might be expected from the importation of new kinds of grain, or from the varieties which might arise from the impregnation of kinds already known, by processes in some degree similar to those observed in improving the breed of cattle. That the Indian corn (*zea mays*) may be cultivated with success in this country, so as to afford a most abundant nutriment, and in favourable situations to ripen its grain, is no longer a matter of doubt. The Egyptian wheat, the stem of which is solid, and bears five or six large ears of corn, is also perfectly suitable to our climate. In the growth of grasses now used in agriculture, a great improvement may also reasonably be expected, whenever these studies obtain that degree of public attention which they intrinsically deserve.

It is not then for the mere gratification of a futile taste, or an idle curiosity, that we are thus associated together. We can indeed admire the works of nature in her vegetable productions—we can observe with astonishment the rapid action of the *dionaea muscipula*, which closes its spiny leaf and stabs the wretched insect that alights upon it—we can regard with wonder the voluntary motion of the *hedysarum gyrans*, the timid contraction of the *mimosa pudica*, or the elastic spring in the stamina of the barberry, which seem to indicate an animal sensibility. We can even, like the florist, contemplate with pleasure the infinite variety of forms and colours displayed by the vegetable world; but to those who wish to contribute to the general stock of utility, these are not the primary objects, although highly preferable to many of those amusements which occupy an important rank in the daily pursuits of mankind.

The great superiority of a public institution over a private collection, in promoting botanical science, will be sufficiently apparent, from the consideration, that the latter depends

upon the taste, the finances, or the caprice of an individual, and if it be encouraged and fostered during his life, is frequently dispersed at his death. That with respect to many plants, a long course of years is necessary to bring them to that state of perfection in which they can perform their operations, and perfect their fruit, and that this can only be expected from a permanent institution. That private collections are in general of difficult access, whereas the very end and object of our establishment is to render it as extensively useful as possible. The joint encouragement and patronage of so respectable and numerous a body of proprietors, many of whom have connexions in foreign parts, which may enable them to render this infant institution the most essential services, certainly afford us the most flattering prospects of success.—And it is with pleasure I can communicate to you, that this example has already excited a spirit of emulation in some of the principal towns of the kingdom, where proposals have been published for institutions on a similar plan. The intercourse to which it is to be hoped these establishments will give rise, and the free communication of every interesting discovery or improvement, cannot fail of diffusing a more general attention to studies of this nature, and eventually of contributing in a high degree to the welfare of the community at large.

To those who have not already had an opportunity of being fully apprized of the proceedings adopted in the prosecution of our plan, it may be necessary to state, that a purchase has been made of a field within the limits of the township, but at the distance of about half a mile from the buildings, containing upwards of ten statute acres of land, of which about five have been appropriated to the use of the garden. On this, two lodges have been built for the habitation of the curator, and other purposes, and the whole is now enclosed with a stone wall, and surrounded by a commodious road. The remainder of the land it is intended to sell for the purpose

of improving the funds of the institution, and it is highly gratifying to observe, that such has been the rapid increase in the value of property since the commencement of our undertaking, and such the advantages of the situation from the vicinity of the garden, that reasonable expectations may be entertained, that the land we have to dispose of, will refund us for the whole; or in other words, that we shall obtain the site of the garden free of expense. In addition to this fortunate circumstance, I have the pleasure to add, that as this land is held under the corporation of Liverpool by a lease, for a term of which only one life and twenty one years are in being, the Mayor and Common Council have, with a liberality which confers on them the highest honour, and entitles them to the most grateful acknowledgments of the present meeting, made a free grant to the proprietors of the reversionary interest in the garden and buildings, as long as the same shall remain appropriated to the purposes of its original institution. Accompanying this signal proof of their attention to the promotion of useful knowledge, and their regard to the true interests of the flourishing community over which they preside, by the expression of their very favourable opinion of the general public utility likely to arise from this institution, and their confidence in its becoming an ornament to the town.

On the disposition and arrangement of the garden, and the appropriation of the funds, so far as the committee have hitherto proceeded, some account will also be expected. Proper departments are allotted to the growth of trees, shrubs, and hardy herbaceous plants of every description, forming a general collection of whatever can be obtained from every part of the world, which is sufficiently hardy to bear the severity of our winter climate. A sufficient portion of the garden will be allotted to medical plants. Another to those used in agriculture; and most particular attention will be paid to the investigation and improvement of the various kinds of grasses and grain.—

In addition to the conservatory already built, it is intended to erect a range of building of two hundred and forty feet in length, which will consist of five distinct apartments, on an elegant and spacious plan, and which will be regulated to different degrees of heat, according to the different climates of those plants which may require their protection. These preparations will, it is presumed, enable us to preserve at least one specimen of every valuable plant, which is either known in this country, or which we may have the good fortune to introduce.

In addition to these objects, it is also thought expedient, that a library of works in natural history, and a collection of specimens of dried plants, should be formed, with all possible expedition, as appendages to the institution. The foundation of the latter is laid by the purchase of the Museum of the late Dr. Forster, which has been brought from Halle, in Germany, and is now under the care of our manager. This collection comprises many thousand specimens, collected by the doctor and his son in the South Sea islands and other parts, and large contributions of plants from those illustrious botanists, Linné, Thunberg, and Jacquin, with whom Dr. Forster was in correspondence. To these we have no doubt of making considerable additions, from the liberality of several eminent men, who have already kindly expressed their intentions in this respect, among whom I may venture to mention Dr. Wright, president of the college of physicians at Edinburgh, who is now obligingly preparing to send us specimens of the plants which he has himself collected in foreign countries, or which have been transmitted to him by his learned correspondents from different parts of the world.

Such, gentlemen, are on this occasion the objects of our common pursuit—objects, which the more they are examined, the more they will be found entitled to the zealous assistance of the proprietors, and to the approbation of the public at large. In the course of a few weeks, it is in the contemplation of the committee,

to open the garden for public use, and I cannot but congratulate the proprietors, that about the same time, the very learned and eminent Dr. Smith, president of the Linnæan society, on the requisition of a considerable number of gentlemen, has consented to deliver his public instructions in this town, on the science of botany; when the slight and unskilful remarks with which I have on this occasion had the presumption to trouble you, will be compensated by a full display of that knowledge, the joint result of genius, opportunity, and application, which has deservedly placed this illustrious disciple of Linné at the head of the first botanical institution in the kingdom.

For the Belfast Monthly Magazine.

ON PUFFING AND THE FASHIONABLE
ARTS OF RISING IN THE WORLD.

WHATEVER advantages in the sciences, and in the more general diffusion of knowledge, the present times may possess over former periods, simplicity of manners and of character, does not rank among them. An artificial character, and a higher polish, have superseded the rougher, but more sincere manners of former days. Such is the progress of luxury. Voltaire in his sarcastic observations on Frederic, surnamed the Great, has aptly characterized this polish, by comparing him to a marble side-board, which notwithstanding its smoothness was still cold and hard, and we may add apt to break what was incautiously brought into contact with it. A taste for dash and the exhibition of the showy qualities pervades all ranks. In the manufactures and in the mechanical arts, show is substituted for strength, and the aim is to produce an article at a small expense, that will look well, without regard to its durable or substantial qualities. The pressure of the times obliging many to curtail their expenses, and the willingness to keep up appearances, when the means are not easily procurable, still farther support the fashion of preferring the slight and showy to the useful. This disposition when once admitted, runs through an entire es-